

## Representations of $p$ -adic groups via graded Hecke algebras and perverse sheaves

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Graded Hecke algebras can arise in several ways. On the one hand they describe categories of representations of reductive  $p$ -adic groups. On the other hand they admit a geometric construction, in terms of equivariant constructible sheaves on complex algebraic varieties. We will discuss how this can be applied to solve some problems in the representation theory of  $p$ -adic groups. We will focus on the  $p$ -adic Kazhdan-Lusztig conjecture, which expresses the multiplicity of an irreducible representation in a standard module as the multiplicity of a local system in a perverse sheaf.

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